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ACTIVITIES OF OSUN WASTE MANAGEMENT AGENCY ON JOB CREATION

Existing studies on waste management agencies focused on sustainable environment, environmental quality, ignoring the fact that the waste management outlets shoulder a broad class of activities which invariably create diverse employment opportunities for the populace. This study assessed the impact of waste management agency on job creation in Osun State. A well-structured questionnaire was administered to 200 respondents; (50) from Osun State waste management agency (OWMA) and thirty (30) each from five other private waste management firms registered under them. These were selected through a multi-stage sampling technique. Data analysis was done through descriptive and regression analysis. The study revealed that waste storage and collection, waste transfer and transportation, waste processing and recovery and waste disposal are waste management processes significant (p < 0,05), with great prospect of facilitating employment generation. Our results also found that working condition is positively related to job creation but insignificant to the study (p > 0,05). It was recommended that government should enact policies that will facilitate and encourage the establishment of waste management plants in all other local government areas of Osun State that yet to be covered and across the nation as a way of ensuring environmental management and employment generation in the country.

Key words: Waste, Waste Management, Job Creation, Unemployment.

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Осун қалдықтарды басқару жөніндегі агенттігінің жұмыс орындарын құру жөніндегі қызметі

Қалдықтарды басқару агенттіктерінің қазіргі зерттеулері тұрақты дамуға, қоршаған ортаның сапасына назар аударады, алайда қалдықтарды басқару кәсіпорындарының әрдайым халықты жұмыспен қамтудың әртүрлі мүмкіндіктерін жасауда кең ауқымды қызмет түрін атқаратындығын ескермейді. Бұл зерттеу қалдықтарды басқару агенттігінің Осун штатында жұмыс орындарын құруға әсерін бағалады. Жақсы құрылымдалған сауалнаманы 200 респондент толтырды; Осун штатындағы қалдықтарды басқару жөніндегі мемлекеттік агенттігі (OWMA) елу (50) және олардың астында тіркелген қалдықтарды басқару бойынша басқа бес жеке фирманың әрқайсысы отыз (30) сауалнама толтырды. Олар көп сатылы іріктеу әдісімен таңдалды. Деректерді талдау сипаттамалық және регрессиялық талдау арқылы жүргізілді. Зерттеу көрсеткендей, қалдықтарды сақтау және жинау, жылжыту және тасымалдау, қайта өңдеу және кәдеге жарату қалдықтарды басқарудың маңызды процестері болып табылады (p < 0,05), жұмыс орындарын құруды жеңілдетудің үлкен перспективасы бар. Біздің нәтижелеріміз еңбек жағдайлары жұмыс орындарын құрумен оң байланысты екенін, бірақ зерттеу үшін статистикалық маңызды емес екенін көрсетті (p > 0,05). Үкіметке қалдықтарды басқаруды қамтамасыз ету және елде жұмыс орындарын құру әдісі ретінде Осун штатының жергілікті өзін-өзі басқарудың барлық басқа аудандарында және бүкіл елде қалдықтарды басқару кәсіпорындарын құруға ықпал ететін және ынталандыратын саясатты қабылдау ұсынылды.

Түйін сөздер: қалдықтар, қалдықтарды басқару, жұмыс орындарын құру, жұмыссыздық.

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Деятельность агентства по управлению отходами Осун по созданию рабочих мест

Существующие исследования агентств по управлению отходами сосредоточены на устойчивом развитии, качестве окружающей среды, игнорируя тот факт, что предприятия по управлению отходами выполняют широкий класс деятельности, который неизменно создает

разнообразные возможности трудоустройства для населения. В этом исследовании оценивалось влияние агентства по управлению отходами на создание рабочих мест в штате Осун. Хорошо структурированная анкета была заполнена 200 респондентам; (50) от Государственного агентства по управлению отходами г. Осун (OWMA) и по тридцать (30) от каждой из пяти других частных фирм по управлению отходами, зарегистрированных под ними. Они были отобраны с помощью метода многоступенчатой выборки. Анализ данных проводился с помощью описательного и регрессионного анализа. Исследование показало, что хранение и сбор, перемещение и транспортировка, переработка и утилизация отходов являются важными процессами управления отходами (p < 0,05), с большой перспективой облегчения создания рабочих мест. Наши результаты также показали, что условия труда положительно связаны с созданием рабочих мест, но статистически не значимы для исследования (p > 0,05). Правительству было рекомендовано принять политику, которая будет способствовать и поощрять создание предприятий по утилизации отходов во всех других районах местного самоуправления штата Осун, которые еще не охвачены, и по всей стране, как способ обеспечения управления отходами и создания рабочих мест в стране.

Ключевые слова: отходы, управление отходами, создание рабочих мест, безработица.

Introduction

Man's involvement in the production and consumption of commodities with the drive to satiate the daily necessities form the basis for waste creation (Beede & Bloom, 1995: 130-150). Stuffs that are not commodity produced for the market (that is, prime product) for which the inaugural user has no farther use in terms of his/her own intentions of production, or consumption and of which he/she wants to discard are referred to as wastes (Adebara et al., 2016: 1-21). Wastes are generated as a result of production activities of men. Wastes originate from homes, hospitals, schools and businesses (EPA, 2011).

Adebara et al. (2016: 1-21) considered waste from three categories which are gaseous, liquid and solid wastes. Waste production is experiencing a whirlwind increment all over the world as a result of perpetual economic growth, urbanization and industrializations and hence, becomes major global issue that government face daily. Wastes when left unattended to for a long time, constitutes health risks, causes unpleasant odour and contaminates the underground water sources and decreases aesthetics and quality. Past studies carried out on waste management agencies focused on the relevance of waste management agency to sustainable environment ignoring the fact that the waste management industry also shoulders a broad class of activities which invariably create diverse employment opportunities for the populace. For instance, those in charge of removing solid wastes from streets and disposing them achieve their livelihood sustainability. Nigerians have been undoubtedly concerned with effective solid waste disposal but their concern is only limited to physical removal of wastes from the streets. Little or no attention is drawn towards those that are employed to actually remove the wastes from the streets and dispose them off which reflects another feasible way of creating jobs to curb unemployment in the country.

As a matter of fact, unemployment is one of the fundamental developmental challenges posing big threats to social stability in many nations of which Nigeria is not exempted (ILO, 2012). With comparison to coordinate nations across the globe, the intensity of unemployment rate in Nigeria is aggravating. Many policies and programs have been implemented in Nigeria to combat unemployment yet, unemployment rates in the country and among the states remained persistent, thereby casting serious doubt about the effectiveness of the agencies and their program resources suitable and efficient in creating job opportunities for the large number of youths in Nigeria. This therefore, reflects the inability of previous governments to design policies that will create more jobs rich with good quality working conditions and provide enabling environment that could encourage both individuals and the private sector to expand employment opportunities without hindrance.

Also, studies carried out on the environment industry showed that the establishment of waste management agencies has to some extent created job opportunities to the populace in some other States od federation like Oyo, Ogun, Rivers, Osun, and Kano in Nigeria. Government of the State of Osun has been lauded for using its enforcement of Osun Waste Management Agency (OWMA) and other strategic programs to reduce youth restiveness and unemployment rate in the state. (Hammed and Sridhar, 2014: 195-203) also asserted that recycling and other waste management activities are potential source of job creation. The above is a reflection that the establishment of waste management agency will not only help to ensure a sustainable environment but will as well contribute relevantly to the reduc-

tion of unemployment rate in Osun state by creating diverse job opportunities for the populace. However, the contribution of this agency to unemployment persistency in the state has not been well researched to determine how vast or otherwise the agency has contributed to the reduction of unemployment in the State. This paper will therefore, examine the contribution of waste management agency towards job creation in Osogbo, Osun State. Hence, the objective of this study is to assess the effectiveness of waste management agency in creating job opportunities to reduce unemployment rate in Osogbo, Osun state.

Literature Review

Waste management involves all the legal, financial, planning and administrative functions and the visible aspects of handling different kinds of wastes (Gilpin, 1976). Thus, various waste management processes such as waste storage and collection, waste transfer and transportation, waste processing and recovery, waste disposal, etc. which essentially requires manpower to carry them out. Existing studies in this line of research spanned through solid waste management and sustainability, dump site and water quality among others. Okeke et al. (2019: 43-56) used a multiple regression analysis to investigate on the effect of effective solid waste management on sustainable development in Anambra State. It was discovered in the study that poor recovery and recycling program significantly has impacts on sustainable development and then it was concluded in the study that effective management of solid waste had important impact on sustainable development in Anambra State. This study however failed to establish the fact that waste recycling program would also encompass creating employment for individuals whose job will be to take responsibility of the waste recycling processes. Therefore, poor waste recovery and recycling program would not only have significant influence on sustainable development but will as well affect unemployment rate negatively by retarding the possibility of job creation in the environment.

Adebara et al. (2016: 1-21) assessed into the effect of solid waste dumpsite on the ground water quality in Osogbo and Ede Metropolis. The wells situated near the Osogbo and Ede dumpsites were the places from which eight (8) distinct samples were collected respectively to analyse the study. The bacteriological, chemical and physical parameters of the water samples were collected and analysed and the results shows that some of the water sample are dangerous for drinking and other domestic consumptions. Also, most of the water sample does not fall within the recommendations of WHO (2006). Consequently, it is essential to create environmental awareness via campaigns that enlightens on the techniques of handling, monitoring and controlling of solid waste with appropriate exploration of the groundwater to carry out analysis properly. However, the study failed to simultaneously acknowledge the need to employ personnel who would be responsible for carrying out the environmental awareness through enlightenment campaigns as recommended in the study. This is such that employing new personnel will amount to creating new jobs and hence, reducing unemployment rate in the study area.

Okafor et al. (2010: 53-65) embarked on a study titled "Job creation for full employment in Nigeria" with a view of ascertaining the extent to which Federal government employment policies had proved effective for achieving full employment in Nigeria. The study was designed essentially as descriptive survey. Results generated from the data analysis done via time series and Pearson's correlation coefficient indicated that Federal government employment policies were not effective for creating jobs. One of the reasons could have being that whenever employment policies are been strategized, Federal government rather focus largely on manufacturing industry (especially oil sector) and agricultural industry with little or no cognizance to other sectors such as the environmental industry out of which constitute the waste management agencies which when improved upon, are capable of creating vast job opportunities for the populace.

Theoretical Framework

The framework for this study was based on cradle to cradle and job chain theories. In order to put a stop to the use-waste-pollute cycle, the cradle to cradle theory was designed. This implies that instead of recycling some specific products into lower grades till it reaches its last stop which is landfill (cradle to grave), these products could rather be infinitely used again to produce identical products (cradle to cradle). On the other hand, the job chain theory emphasized that jobs are generated when there is growth in the business. This is such as there is expansion in the industry, vacancies for new staffs are created all through the jobs ladder, creating the ground for middle and low-level workers to step up the chain and finally paving way for job opportunities for the low-skilled, unemployed people (Onuoha et al. 2019).

Methodology

This study utilized primary data in order to achieve the objective of the study. The population of this study is composed of the waste management firms in Osun state. The study was carried out in Osun State which is one of the 36 states of the Federal Republic of Nigeria and it is an inland State in the South-Western region of Nigeria with Osogbo as its capital. The sample size for this study was extracted from the population of the study which is the total number of employees in Osun State waste management agency (OWMA) whereas the study employed a multi-stage sampling technique. In the first stage, six waste management firms were selected (that is, one government agency and five other private firms registered under the government agency) based on the prevalence of waste management firms in study area. In the final stage, thirty (30) respondents were selected from each of the five (5) privately owned waste management firms while fifty (50) respondents were selected from the government owned waste management firm, making a total of two hundred (200) respondents.

Descriptive statistics was employed in describing the socio-economic characteristics of the employees in the waste management firm and was used in explaining variables such as age, gender, marital status, educational status, occupational status, years of service in the waste management agency and so on. The ordinary least square (OLS) technique was best suited in analysing the data collected for the study because it possesses the properties of best linear and unbiased estimator (BLUE). In assessing the impact of solid waste management agency on job creation, the model formulated for the study in its functional form is expressed as follows:

$$Y = F (WS, WT, WP, WD, WC) \qquad (1)$$

where, Y = Performance of solid waste management agency towards Job creation

WS = Waste storage and collection
WT = Waste transfer and transportation
WP = Waste processing and recovery
WD = Waste disposal
WC = Working condition
The linear form of the model is expressed as:

$$Y = \beta_0 + \beta_1 WS + \beta_2 WT + \\ + \beta_3 WP + \beta_4 WD + \beta_5 WC \qquad (2)$$

The econometric form of the model that includes the error term is expressed as:

$$Y = \beta_0 + \beta_1 WS + \beta_2 WT + \\ + \beta_3 WP + \beta_4 WD + \beta_5 WC + U \qquad (3)$$

where, βi = coefficient to be estimated and U=error term.

Results and Discussion

Demographic Information

The socio-economic traits of the respondents were examined under the features: gender, age, educational qualification, occupational status, years of service, type of wastes and solid waste management processes handled.

Table 1 – Demographic Information about the Respondents

Variables	Structure	Frequency	Percentage
Gender	Female	66	33.0
	Male	134	67.0
Age	18-24year	29	14.5
	25-40 years	106	53.0
	41-60years	65	32.5
	above 60years	0	0
Level of Education	O LEVEL	76	18.5
	NCE/ND	72	52.5
	B.SC/HND	32	20.5
	Other	20	8.5
Occupation Status	Contract	18	9.0
	Temporal	30	15.0
	Casual	77	38.5
	Permanent	75	37.5
Length of Service	Below 2	76	38.0
	2-4 years	72	36.0
	5-7years	32	16.0
	Above 7 years	20	10.0
Note – compiled by authors			

From the table above, it can be deduced that 134 individuals which is equivalent to 67% of the respondents were males while only 66 individuals equivalent to 33% of the respondents were females. Although, the number of male workers is higher than that of female yet it can be clearly shown that the employment of individuals in the waste management agency is not gender biased in any way, that is, the job created there is opened to everyone without any form of gender stratification.

Pertaining to age, the table revealed that 106 of the respondents of the study fell between the age group of 25-40 years constituting 53% of the total sample. The least percentage of 14,5% being equivalent to 29 persons were respondents within the age range of 18-24 years while 65 persons constituting 32,5% of the total sample fell within the age range of 41-60 years. However, there were no workers that were above 60 years, this simply depicts that all the workers in the waste management agency were within the economically active age of below or exactly 60 years. This implies that there was efficiency and effectiveness in waste management since its workers were still within the age in which they were capable of ensuring efficiency at work.

As regards educational qualification, 18,5% of the total sample consisting of 37 respondents in the study area only attained O' level certificate, 52,5% of the total sample consisting 105 respondents attained one or both of NCE and OND, respondents who attained one or both of B.Sc or HND were 41 persons (equivalent to 20,5% of the total sample) and the least percentage of 8,5% constituting 17 respondents were the workers that attained other educational qualification not stated within the scope of the study.

The table also showed that 9% of the target population of the study were contract staffs, 15% are temporary staffs, casual staffs holds 38,5% of the target population of study while the permanent staffs were only 37,5% which constitutes 18, 30, 77 and 75 persons of the total respondents respectively. This implies that in one way or the other, the waste management agency through employment generation act as a means of livelihood to those who secured employment through them.

The table revealed that 76 respondents has been working for less than two years in the waste management agency, those who have been working within the range of 2-4 years in the agency were 72 persons and workers whose length of service is within the range of 5-7 years are only 32 persons which all respectively constituted 38%, 36%, and 16% of the total sample. However, the percentage of those who have been working for more than 8 years is 10% equivalent to 20 respondents, this is due to the fact that waste management agency came into existence recently in the study area.

As shown in Figure 1, 24,5% representing 49 respondents handles industrial waste, 16% constituting 32 respondents handles biomedical waste, 21,5% equivalent to 43 respondents handles solid waste while 38% representing 76 respondents handles all types of wastes.
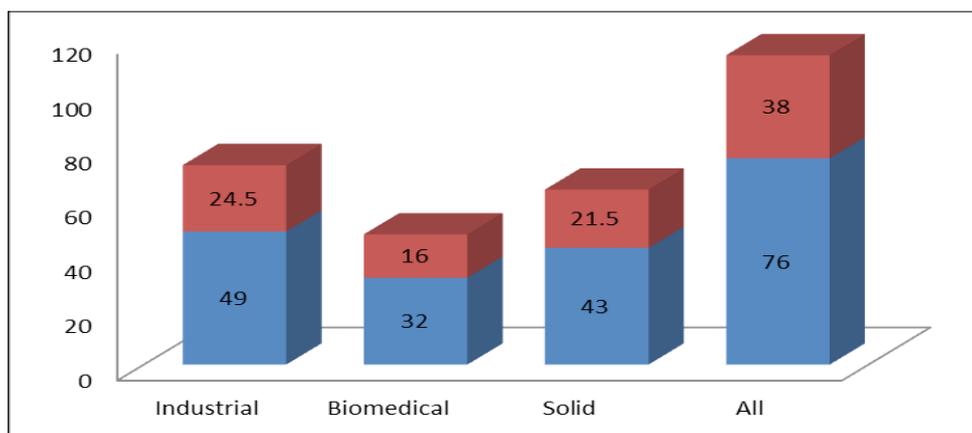

Figure 1 – Types of Wastes
Note – compiled by authors

Finally, Figure 2 reflected that 31% corresponding to 62 respondents of the study were responsible for waste storage and collection, 29,5% equaling 59 respondents were responsible for transferring and transporting wastes and 18% equivalent to 36 respondents were responsible for waste processing and recovery. The respondents in charge of waste disposal were 40 persons (that is, 20% of the total sample) whereas 1,5% equivalent to 3 persons does not involve in any of the waste management processes aforementioned. Inferences drawn from previous studies has it that those who are not involved in any waste management processes are often the ones that are rather involved in other administrative work in the waste management agency.
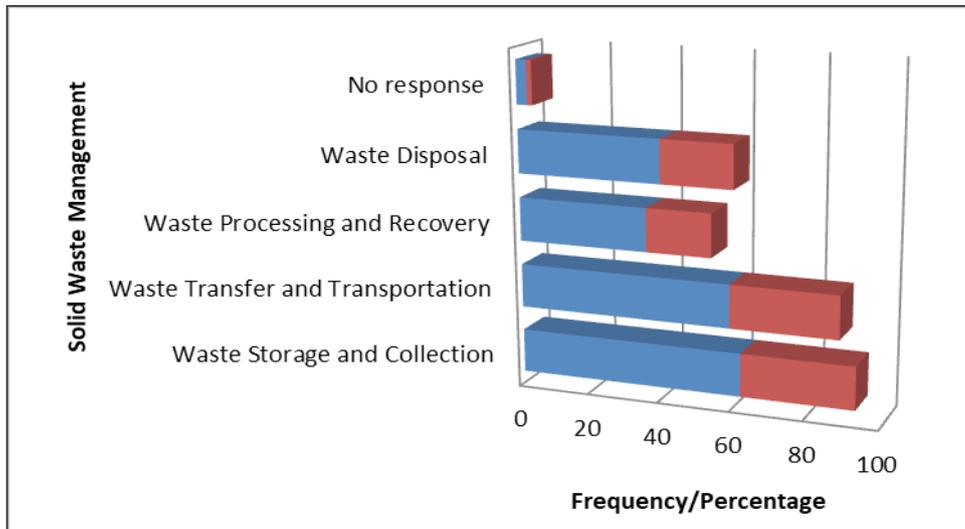
Figure 2 – Types Waste Management Technique Employed
Note – compiled by authors

However, an interview with one of the respondents of the study gave the knowledge that the employees for the waste management processes are insufficient for the work because there are only few people applying for the job due to the fact that people are beclouded by the belief that the job opportunities inherent in waste management agency are only menial jobs with meager salary.

Analysis of the impact of waste management agency on job creation

Table 2 – Analysis of Variance (ANOVA[a])

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	36,659	5	7,332	16,561	0,000[b]
	Residual	84,559	191	0,443		
	Total	121,218	196			
a. Dependent Variable: PERF SWMA TOWARD JOB CREATION						
Note – compiled by authors						

Table 2 present the analysis of variance for the OLS model generated. The table shows that sum of square for regression is 36,659, sum of square for residual is 84,559 and sum of square total is 121,218. However, the F-statistic obtained for the model is 16,561 and the corresponding p-value is 0,0000. Since the p-value obtained (sig=0,000) is less than 5% level of significance, it can therefore be concluded that the model was statistically significant. This implies that the joint contribution of explanatory variables to dependent variable was also significant.

Table 3 presented the coefficients of the independent variables for the model. The value of T-statistic and the corresponding p-value ($p<0,05$) showed that all the variables used as proxy for waste management agency were individually significant at 5% level of significance. They all had positive coefficient which indicated that Waste Management Agency had positive and significant relationship with employment creation. The table showed that a 1% increase in the employment of workers to the work of waste transfer and transportation, waste processing and recovery, waste disposal, waste storage and collection will yield 30,4%, 39,9%, 29,4% and 18,4% increase respectively to job creation. By implication, waste management agency has great potential of contributing massively to employment

generation. It can also be deduced from the table 3 that a 1% improvement in the working condition of waste management agency employees will yield

10,6% increase to job creation. However, the variable proxy working condition was found to be insignificant (p>0,05) in the model.

Table 3 – Regression analysis Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0,702	0,300		2,336	0,021		
	Waste_Transfer_Transportation	0,304	0,058	0,344	5,257	0,000	0,851	1,176
	Waste_Processing_Recovery	0,399	0,071	0,435	5,631	0,000	0,985	1,016
	Waste_Disposal	0,294	0,060	0,320	4,931	0,000	0,866	1,155
	Waste_Storage	0,184	0,060	0,213	3,083	0,002	0,959	1,043
	Working_condition	0,106	0,055	0,123	1,922	0,056	0,887	1,128
a. Dependent Variable: PERF SWMA TOWARD JOB CREATION								
Note – compiled by authors								

Table 4 – Model Summary[b]

Model	R	R-Square	Adjusted R Square	Std. Error e	Durbin-Watson
1	0,867[a]	0,751	0,745	0,66537	1,769
a. Predictors: (Constant)					
b. Dependent Variable: PERF SWMA TOWARD JOB CREATION					
Note – compiled by authors					

The table presented the model summary for Ordinary Least Square (OLS). It can be seen that the value of R is 0,867, R-square is 0,751, Adjusted R-square is 0,745 and Durbin-Watson statistic is 1,769. The value of R (0,867) which is the multiple correlation coefficients indicated a strong positive correlation between the variables of the study. The value of R-square (0,751) which is the coefficient of determination indicates that about 75,1% of variation in dependent variable (job creation) is explained by the explanatory variables included in the model while the remaining 24,9% is explained by other variables outside the model. This implied that job creation through waste management agency in Osun State is highly significant at 75,1%. The value of Adjusted-R-Square (0,745) indicates that explanatory variables included in our model are good predictor of the dependent variable, thus the data set is well fitted. The value of Durbin-Watson statistic (1,769) indicates that the model generated is free of serial correlation since the value of Durbin-

Watson obtained lies within the interval of 1,5-2,5. Therefore, the model can be accepted and used for prediction.

Discussion of Findings

In conformity with the foregoing statements, this study was able to pinpoint a societal immediate need which is to dispose waste which birthed the existence of the waste management firms and this gave rise to the need to employ individuals to do the work which then amounted to employment generation. Thus, the outcome of this study showed that a 1% increase in waste transfer and transportation, waste processing and recovery, waste disposal, waste storage and collection will increase job creation by 30,4%, 39,9%, 29,4% and 18,4%, this affirmed that the initiation of waste management agency is a strategic means by which job opportunities is opened for the unemployed masses.

In the course of the research, an interview with one of the respondents of the study revealed that the waste management firms in Osun State are only found in towns such as Osogbo, Ile-Ife, Ilesa, Iwo, Ikirun and Ede out of which only few are effective. Since the results of the analysis of this study covering Osogbo and its environments town attested to the positive relationship between job creation and activities of waste management agency, therefore, if waste management outlets are made available and effective in all towns across Osun State, it then follows that there will be greater potential for job creation through waste management firms thereby reducing unemployment in the State.

Conclusions and Recommendations

The study concluded that effective waste management presents great opportunities not just to manage our environment better but also to create job opportunities for the unemployed masses. From the data analysis conducted, the study also concluded that the effectiveness of waste management agency positively and significantly impacts job creation and job creation in the study area, and as well is positively related to working condition such that the higher the improvement in working condition, the higher the job creation rate.

The study therefore, recommended that government should put in place policies and programs that will facilitate the establishment of more and effective waste management plants in all the local government areas of Osun state and as well as across the nation as a means of reducing unemployment rate since it is rich in job creation. Alternatively, waste management plants of small capacity at less distance can be installed across the state. This will lead to increase in employment opportunity for local people as the installation of new plant requires design person, Civil, Mechanical, Electrical and Software Engineers, Clerical Staff, Office boys and other relevant staff. Also, Government should implement advanced waste technologies and enact policies gearing towards improving the working condition of waste management employees as this would facilitate the achievement of goal number eight (8) of the sustainable development goals which is "Decent work and economic growth".

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